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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,299	09/11/2003	Susumu Hashimoto	242589US2TTCRD	3566
22850	7590	06/02/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WATKO, JULIE ANNE	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,299

Applicant(s)

HASHIMOTO ET AL.

Examiner

Julie Anne Watko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 12-15, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on May 12, 2006. These drawings are acceptable.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 14, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujiwara et al (US Pat. No. 6560077 B2).

The product by process limitations in these claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product “gleaned” from the process limitations or steps, which must be determined in a “product by process” claim, and not the patentability of the process limitations. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

As recited in independent claims 1 and 19-20, Fujiwara et al show a magnetoresistance effect element (“SV-element”, see col. 3, line 45; see Fig. 3a, for example) comprising: a magnetoresistance effect film (including 31, 32 and 33) including a first ferromagnetic layer 32 whose direction of magnetization is pinned substantially in one direction, a second ferromagnetic layer 31 whose direction of magnetization changes in response to an external magnetic field, and an intermediate layer 33 provided between the first and second ferromagnetic layers; a pair of electrodes (“from one lead to the other”, see col. 3, lines 48-49) electrically coupled to the magnetoresistance effect film and configured to supply a sense current perpendicularly to a film plane (“CPP”, see col. 3, line 44) of the magnetoresistance effect film; and a phase separation layer (including 33a and 33b) provided between the pair of electrodes, the phase separation layer comprising a first phase and a second phase (33a and 33b), one (33b) of the first and second phases including at least one element selected from the group consisting of oxygen (see col. 3, line 67), nitrogen (see col. 4, line 2), fluorine and carbon in higher concentration than other (33a) of the first and second phases.

As recited in independent claim 19, in addition to the above teachings, Fujiwara et al show a magnetic head (“head”, see col. 1, line 12).

As recited in independent claim 20, in addition to the above teachings, Fujiwara et al show a magnetic reproducing apparatus (including “head” and “medium”, see col. 1, lines 12-13) which reads magnetic information in a magnetic recording medium (““head” for reading information signals recorded on a magnetic medium”, see col. 1, lines 12-13).

As recited in independent claim 14, Fujiwara et al show a magnetoresistance effect element (see Fig. 5) comprising: a magnetoresistance effect film (including 51, 52 and 53a-c)

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including a first ferromagnetic layer 52 whose direction of magnetization is pinned substantially in one direction, a second ferromagnetic layer 51 whose direction of magnetization changes in response to an external magnetic field, and an intermediate layer (including 53a-c) provided between the first and second ferromagnetic layers; a pair of electrodes (“electrodes (not shown)”, see col. 4, line 53) electrically coupled to the magnetoresistance effect film and configured to supply a sense current perpendicularly to a film plane of the magnetoresistance effect film; a magnetic (the use of “Cr” is disclosed, see col. 3, line 65 and col. 4, line 1) layer (including 53b and 53c) provided between the pair of electrodes (the location of the electrodes is inferred by the Examiner from the current flow direction; see “CURRENT” arrow in Fig. 5), the magnetic layer comprising a first region 53b and a second region 53c, the first region including at least one element selected from the group consisting of oxygen, nitrogen, fluorine and carbon in higher concentration than the second region; and a magnetic coupling interception layer 53a provided between the magnetic layer and the first or second ferromagnetic layer (see location of 53a in Fig. 5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 12-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al (US Pat. No. 6560077 B2).

Fujiwara et al show a device as described above for claims 1, 14 and 19-20.

As recited in independent claim 15, in addition to the above teachings, Fujiwara et al show a layer 53a provided between the magnetic layer and the first or second ferromagnetic layer (see location of 53a in Fig. 5), including at least one element (Cu) selected from the group consisting of copper, gold, silver, rhenium, osmium, ruthenium, iridium, palladium, chromium, magnesium, aluminum, rhodium and platinum.

Fujiwara et al are silent regarding the specific dimensions recited in claims 12-13 and 15.

The law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 12-13 and 15. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 12-13 and 15 since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization

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/experimentation and thereby obtain various optimized relationships including those set forth in claims 12-13 and 15.

Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claims 12-13 and 15 are considered to be within the level of ordinary skill in the art.

It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Allowable Subject Matter

7. Claims 2-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1-15 and 19-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fukuzawa et al ("Specular spin-valve films with an FeCo nano-oxide layer by ion-assisted oxidation", J. Ap. Phys. v. 91 no. 10 p. 6684) show a GMR with ion-assisted oxidation of a layer to achieve high specular reflection of electrons (see p. 6684).

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Monday through Thursday, noon to 10PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko, J.D.
Primary Examiner
Art Unit 2627

May 26, 2006
JAW

